

E/C

**Notice of Allowability**

Application No.

10/760,974

Examiner

Cindy D. Khuu

Applicant(s)

BAI ET AL.

Art Unit

2863

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/22/05.
2. ☒ The allowed claim(s) is/are 1,2,5 and 6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 05/10/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Species I, claims 1-2 and 5-6 in the reply filed on 09/22/05 is acknowledged.

## **EXAMINER'S AMENDMENT**

This application is in condition for allowance except for the presence of claims 3-4 and 7-8 are non-elected without traverse. Accordingly, claims 3-4 and 7-8 have been cancelled.

### ***Pertinent Art Cited***

The following US Patent Applications reveal the current state of the art:

Breed et al (US 2004/0130442) teach a analysis/diagnosis smart system, comprising: (a) a data acquisition means, for measuring the vibration signal (paragraph 973); (b) a bench data setup means, for creating fundamental data of the bench in accordance with the measured vibration signal (paragraph 577 and 581); (d) a Kalman filter means (paragraph 817); (e) a fuzzy diagnosis means (paragraph 261); and (f) a window interface (e.g., GUI), (paragraph 220);

However, Breed does not teach at least a STFT time-spectra analysis/re-sampled order tracking means, for obtaining the primary data of the frequency distribution for rotor operated in non-constant tachometer by conducting a short-time Fourier transformed (STFT) time-spectra analysis and re-sampled order tracking in accordance with measured vibration signal and tachometer signal.

Martone (US 2002/0003843) teaches an analysis/diagnosis system, comprising: (c) a short-time Fourier transformed (STFT) time-spectra analysis (paragraph 75); (d) a Kalman filter means (paragraph 71); and (f) a window interface (e.g., GUI), (paragraph 33).

However, Martone does not teach at least a data acquisition means, for measuring the vibration signal and tacho signal of a rotor; and a bench data setup means, for creating fundamental data of the bench in accordance with the measured vibration signal and tacho signal of the rotor as well as the characteristic of the bench itself.

Hadley et al. (US 4,924,420) teach a processing system, comprising: (a) a data acquisition means, for measuring the vibration signal and tacho signal (Fig. 6-7).

However, Hadley does not teach at least a fuzzy diagnosis means, for incorporating frequency order energy distribution calculated by the Kalman filter or RLS algorithmic means with data created by the bench data-setup means to achieve a fuzzy diagnosis conclusion in accordance with a preset fuzzy diagnosis logic.

Dister et al. (US 6,289,735) teach a high-resolution frequency order analysis/diagnosis smart system for rotor, comprising: (a) a data acquisition means, for measuring the vibration signal of a rotor (Column 4, lines 56-59);

However, Dister does not teach at least a bench data setup means, for creating fundamental data of the bench in accordance with the measured vibration signal and tacho signal of the rotor as well as the characteristic of the bench itself; and a STFT time-spectra analysis/re-sampled order tracking means, for obtaining the primary data of the frequency distribution for rotor operated in non-constant tacho by conducting a short-time Fourier transformed (STFT) time-spectra analysis and re-sampled order tracking in accordance with measured vibration signal and tacho signal.

***Allowable Subject Matter***

Claims 1, 2, 5 and 6 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 1 and 5 is the inclusion of the limitations "a STFT time-spectra analysis/re-sampled order tracking means, for obtaining the primary data of the frequency distribution for rotor operated in non-constant tacho by conducting a short-time Fourier transformed (STFT) time-spectra analysis and re-sampled order tracking in accordance with measured vibration signal and tacho signal; a Kalman filter means, for obtaining a high-resolution frequency order energy distribution of on-line updateable type by a model based Kalman filter frequency order analysis technique using the measured vibration signal and tacho signal as input data and parameters setup by the computation result of the time-spectra analysis and re-sampled order tracking; and a fuzzy diagnosis means, for incorporating frequency order energy distribution calculated by the Kalman filter or RLS algorithmic means with data created by the bench data-setup means to achieve a fuzzy diagnosis conclusion in accordance with a preset fuzzy diagnosis logic". The prior art of record, taken alone or in combination, fails to disclose or render obvious.

Claims 2 and 6 are allowed due to their dependency on claims 1 and 5.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Fax/Telephone Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy D. Khuu whose telephone number is (571) 272-8585. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CMR 10/14/05

  
John Barlow  
Supervisory Patent Examiner  
Technology Center 2800